

REMARKS

5 The Office Action dated 11/17/2005 indicates claims 1-20 are pending, of which
claims 1-12 are withdrawn, claims 13-20 are objected to, claims 13-19 are rejected, and
claim 20 is allowed. More specifically, claims 13-19 are rejected under 35 USC 101 as
being directed to non-statutory subject matter. Claims 13-15 are rejected under 35 USC
102(b) as being anticipated by Smaha et al. (5,557,742). Claim 19 is rejected under 35
10 USC 103(a) as being unpatentable over Smaha et al. (5,557,742). Claims 13-20 are
objected to under 37 CFR 1.75(a) for failing to particularly point out and distinctly claim
the subject matter which the Applicant regards as the invention. Applicant gratefully
acknowledges the Examiner's finding claim 20 to be allowed. Applicant also wishes to
thank the Examiner for identifying several typographical errors.

15 **Regarding Item 3 in the Office Action:**

Replacement drawing sheets are submitted for the originally submitted drawing
sheets. The replacement drawing sheets are formal. The sheet numbering from the
originally submitted drawing sheets have been deleted in the replacement drawing
sheets as requested by the Examiner.

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Regarding Item 4 in the Office Action:

A replacement abstract is provided as requested by the Examiner. See the
SPECIFICATION AMENDMENT section above.

25 **Regarding Item 5 in the Office Action:**

The specification has been amended as requested by the Examiner.

Regarding Item 6 in the Office Action:

30 The CROSS REFERENCES section has been amended to incorporate
corrections and information updates as required by the Examiner.

Regarding Item 7 in the Office Action:

The Office Action indicates that Page 1, line 30 contains a typographical error: it reads "are an extremely complex" but it should read "are extremely complex." Please
5 delete the words "are an extremely complex" and replace them with the words "are extremely complex" on page 1, line 30.

Regarding Item 8 in the Office Action:

The Office Action states that "Page 3, lines 16-17 of the specification cites '...
10 The invention is capable of other embodiments...' however 'capable of' implies that the invention may or may not do what is being cited and specifically what other embodiments are being referred to here?" The line that is referenced appears in the second paragraph of the SUMMARY section of the originally filed application.

Applicant believes that the Examiner's interpretation of the phrase "capable of" is
15 not the appropriate interpretation for Applicant's description. Applicant uses the word "capable" and the phrase "capable of" according to their standard accepted meaning. Standard dictionary definitions for these words do not describe an indefinite condition or a condition with alternatives. The standard definition of these words is in contrast to the Examiner's interpretation of what appears to be a conditional situation. Applicant
20 requests that the Examiner reconsider Applicant's use of the words "capable" and "capable of" according to their standard dictionary definitions. If the Examiner does not find this argument persuasive, Applicant can provide, upon request, United States patents with claims that include the phrase "capable of" for describing claim elements.

25 Regarding Item 9 in the Office Action:

Page 4, lines 10-14 have been revised to meet the Examiner's requirement.

Regarding Item 10 in the Office Action:

The Office Action states "that page 5, line 18, of the specification cites 'capable
30 of' which implies that the invention may or may not do what is being cited here."
Applicant believes that the Examiner's interpretation of the phrase "capable of" is not

the appropriate interpretation for Applicant's description. Applicant uses the word "capable" and the phrase "capable of" according to their standard accepted meaning. Standard dictionary definitions for these words do not describe an indefinite condition or a condition with alternatives. The standard definition of these words is in contrast to the

5 Examiner's interpretation of what appears to be a conditional situation. Applicant requests that the Examiner reconsider Applicant's use of the words "capable" and "capable of" according to their standard dictionary definitions. If the Examiner does not find this argument persuasive, Applicant can provide, upon request, United States patents with claims that include the phrase "capable of" for describing claim elements.

10 Furthermore, Applicant would like to note that page 5, line 18 uses the phrase "capable of" to describe the capabilities of a commercially available apparatus with functions that have been described in the cited patent application referred to in the same paragraph. That apparatus is mentioned because it is one of many suitable means of providing data that can be used for the present invention. More specifically,

15 the use of the phrase "capable of" does not provide a necessary limitation for the claimed invention of Applicant's present application.

The status of U.S. application serial No. 09/643,614 has been added to the revised paragraph for page 5, lines 13-22 as shown in the specification amendment section above. Specifically, the U.S. application is shown as issued patent U.S.

20 6,691,068.

Applicant wishes to thank the Examiner for finding the typographical error on page 8, line 6 of the originally filed specification. The error has been corrected as shown in the specification amendment section above.

25 **Regarding Item 11 in the Office Action:**

A corrected declaration is provided.

Regarding Item 12 in the Office Action:

The Office Action states that "Claims 13-20 are objected to under 37 CFR 1.75(a)

30 for failing to particularly point out ..." The Office Action also states "While the examiner

understands the intentions of the Applicant he feels confusion could be drawn from the limitations" presented.

The amendments described below are for the purpose of reducing the chances for confusion in interpreting the claims. More specifically, the amendments are for the purpose of clarifying the claims and are not for the purpose of narrowing the claims.

Claim 13 has been amended to clarify step i and claim 13 has been amended to clarify the relation between step ii and step iii, as shown in the claim amendments section above.

The Office Action states that "claim 16, lines 3-4, cite 'time stretching at least one portion of the first data set and of the second data set by inserting interpolated values so as to produce an equal number of data points...' which does not particularly point out how exactly the interpolated values are inserted to accomplish what is being cited in the claim."

Applicant respectfully disagrees with the statement in the Office Action regarding claim 16. Applicant's use of the description "interpolated values" provides the necessary information a person of ordinary skill in the art would need in order to know how the values are inserted to accomplish what is being cited in the claim. The definition of the word "interpolated" has the same meaning corresponding to the definition of the word "interpolation" for which common mathematical definitions include "mathematical process of finding intermediate values in a series where some of the values are tabulated" as stated in *Dictionary of Science* by Siegfried Mandel, Dell Publishing Company, New York, 1969; "to supply (intermediate terms) in a series of terms," as stated in *Webster's New World Dictionary of the American Language*, College Edition, the World Publishing Company, Cleveland, 1966; "to estimate a value of (a function or series) between two known values," as stated in *The American Heritage Dictionary of the English Language, Fourth Edition*, the Houghton Mifflin Co. (information taken from dictionary.com). More specifically, Applicant believes that the definition of interpolated values inherently provides details of how they are inserted. Claim 16 provides sufficient details so that a person of ordinary skill in the art would be able to recognize whether they are infringing the claim or not. Furthermore, Applicant's

specification provides sufficient detail so as to enable a person of ordinary skill in the art to practice Applicant's invention without undue experimentation.

Claim 17 has been canceled.

5 Claim 20 has been amended so as to clarify the claim. Specifically, the words "each interval" have been replaced with the words "each data interval" and a clearer relation between step ii and step iii has been provided.

It is Applicant's belief that the foregoing amendments and arguments provide the necessary clarification of claims 13-20 so as to meet the Examiner's requirements. Reconsideration is requested and withdrawal of the objections to claims 13-20 is
10 respectfully requested.

Regarding Item 14 in the Office Action:

The Office Action states that "Claims 13-19 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter." The Office
15 Action further states that the "claims recite a mathematical algorithm" and "which as claimed is not computer implemented."

Independent claim 13 has been amended so that it more clearly recites statutory subject matter. More specifically, it has been amended so that the beginning of the preamble recites "A computer program product comprising executable code for a
20 method of matching" as a replacement for the phrase "A method of matching." The body of the claim recites steps for a method according to one embodiment of Applicant's invention. Support for this amendment can be found in the originally filed specification page 3, lines 10-12 and page 11, lines 11-14; this amendment does not constitute new matter.

25 The Office Action further states that "there is no clearly defined practical application of the claimed method or does not draw a conclusion as to the final end result of the mathematical operation being directed toward a practical application and as the claimed method does not produce a useful, concrete and tangible result, the claimed invention is directed to non-statutory subject matter." Applicant respectfully
30 disagrees.

One aspect of Applicant's claimed invention is a method of determining whether there is a match between data sets of operating characteristics measured for one or more processes on one or more process tools; obtaining this result requires more than just an algorithm. The operating characteristics are measurements representing the performance of the process and/or the performance of the process tool. Applicant's claimed invention provides a user with valuable information about the performance of a process and/or the performance of a process tool. This information is particularly useful for applications such as managing and maintaining processing equipment used in manufacturing facilities such as those for fabricating semiconductor devices, flat-panel displays, and lithography masks.

Several examples of practical applications for Applicant's claimed method are provided in the originally filed specification page 10, line 6 through page 11, line 24. Examples of specific applications are as follows: Applicant's claimed method for matching data sets can be used for "equipment matching applications so that process tools running the same process produce substantially the same process results" (see originally filed specification page 10, lines 6-9). "Embodiments of the present invention can directly allow a user to evaluate the effectiveness of chucking systems in maintaining uniform temperatures at the wafer surface. It may also allow the user [to] evaluate spatial uniformity and stability of the plasma" (see originally filed specification page 10, lines 11-14). Another example of an application for Applicant's claimed invention includes "automatically characterizing semiconductor processing tools using spatially resolved time-series data" (see originally filed specification page 11, lines 13-14). Still another example application for Applicant's claimed invention includes using the invention "to determine when maintenance is required so as to maintain production specifications for process tools. Another aspect of tool maintenance includes process drift modeling and prediction" (see originally filed specification page 11, lines 1-3). In addition to the example applications presented in the originally filed specification, numerous additional applications for Applicant's claimed invention will be obvious to persons of ordinary skill in the art, in view of Applicant's disclosure.

In view of the foregoing arguments and amendments, Applicant respectfully requests withdrawal of the rejections of claims 13-16, 18, and 19 under 35 USC 101.

Regarding Item 16 in the Office Action:

The Office Action states that "Claims 13-15 are rejected under 35 USC 102(b) as being anticipated by Smaha et al. (5, 557,742).

5 Smaha et al. does not teach or suggest Applicant's claimed invention. A more detailed review of the teachings of Smaha et al., with respect to Applicant's teachings, will show that Applicant's claimed invention distinguishes over the teachings of Smaha et al. As indicated above, an aspect of Applicant's claimed invention is a method of determining whether there is a match between data sets of operating characteristics
10 measured for one or more processes on one or more process tools. The operating characteristics are measurements representing the performance of the process and/or the performance of the process tool. Applicant's claimed invention provides a user with valuable information about the performance of a process and/or the performance of a process tool. This information is particularly useful for applications such as managing
15 and maintaining processing equipment used in manufacturing facilities such as those for fabricating semiconductor devices, flat-panel displays, and lithography masks. The processing equipment for performing the processes are configured for changing the physical and/or chemical properties of a workpiece using one or more process chambers for chemical, physical, electrical, or other processes.

20 Unlike Applicant's claimed invention, Smaha et al. teach methods and systems for misuse detection for processing systems and networks (column 1, lines 19-30). The problem of computer misuse is particularly pointed out (column 1, lines 31-45). Smaha et al. specifically state that they provide a method and systems for detecting intrusion and misuse of data processing systems that minimizes the number of false positive
25 misuse reports (column 3, lines 19-28). Smaha et al. teach the use of processing system inputs that include processing system audit trail records, system log file data, and systems security state data information for further analysis to detect and report processing system intrusions and misuses (column 3, lines 29-34). Smaha et al. provide definitions of their terms and more detailed descriptions of their systems and
30 methods that further show differences between their teachings and Applicant's teachings (column 5, lines 22-55 and column 6, lines 54-61).

Applicant's claimed invention uses data sets that are different from those used by Smaha et al. Each of Applicant's independent claims state that the data sets include "an operating characteristic for a process" or explicitly identifies the operating characteristic for the process. Whereas, Smaha et al. teach using several different system inputs; none of the system inputs taught by Smaha et al. are operating characteristics for a process as recited in Applicant's claims. The difference in the nature of the data sets taught by and recited by Applicant's claims are unsuitable for use with the teachings of Smaha et al.

Furthermore, the processes described by Smaha et al. are fundamentally different from the processes of Applicant's claimed invention. The processes of Smaha et al. are activities that take place on a computer or a network. In contrast to Smaha et al., Applicant's processes refer to processes carried out in process tools for manufacturing a product. The data sets for Applicant's claimed invention are data measurements taken for the process.

In summary, Smaha et al. teach using data inputs needed for detecting whether a person has intruded on or misused a computer or network or similar system. Applicant teaches using data sets that include process characteristics representing the performance of a process and/or the performance of a process tool to determine whether there is a match for the data sets. Smaha et al. and Applicant use different types of data and use different methods of handling the data to obtain different results for non-analogous applications. The teachings of Smaha et al. cannot be used to obtain the results obtained with Applicant's claimed invention. Applicant's claimed invention cannot be used to obtain the results taught by Smaha et al. Also, a finding of anticipation requires that all of the claim elements and limitations or equivalents be provided in a single reference; this is clearly not the case for the teachings of Smaha et al. with respect to Applicant's invention.

In view of the foregoing arguments and amendments, Applicant respectfully requests withdrawal of the rejections of claims 13-15 under 35 USC 102.

Regarding Item 18 in the Office Action:

The Office Action indicates that claim 19 is rejected under 35 USC 103 (a) as being unpatentable over Smaha et al. (5,557,742). It further states that Smaha et al. discloses "that the combination of unlimited transition functions and states also allows the representation of any pattern of events. Consequently, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that because any pattern of events could be represented the technique to be used in a wide variety of processes including an electronic device fabrication process."

Applicant respectfully disagrees with the interpretation of the scope of Smaha et al. teachings with respect to the quotation in the previous paragraph. Smaha et al. do teach the representation of any pattern of events. However, Smaha et al. say nothing about being able to represent any **type** of events. In fact, the teachings of Smaha et al. are presented only in the context of detecting misuse and unauthorized intrusion for processing systems, where the processing system refers to a system such as a network or computer. Smaha et al. use a set of inputs that have no relation to the data sets of Applicant's claimed invention. Consequently, it would not have been obvious to a person of ordinary skill in the art to obtain Applicant's claimed invention based on the teachings of Smaha et al.

In view of the foregoing arguments and amendments, Applicant respectfully requests withdrawal of the rejections of claim 19 under 35 USC 103.

Regarding Item 19 in the Office Action:

Again, Applicant gratefully acknowledges the Examiner's finding claim 20 to be allowed. Applicant has amended claim 20 and provided clarifications (see comments Regarding Item 12) that Applicant believes meets the requirements stated in the Office Action. Applicant respectfully requests withdrawal of the objection to claim 20.

Regarding Item 20 in the Office Action:

Applicant thanks the Examiner for providing the references cited as being of general interest. Applicant believes that these references do not teach or suggest Applicant's claimed invention.

Regarding Canceled Claims:

5 In order to expedite the issuance of the notice of allowance, withdrawn claims 1-12 have been canceled without prejudice and claim 17 has been canceled without prejudice. Applicant reserves the right to continue prosecuting these canceled claims in one or more qualifying applications such as divisional, continuation, continuation in part, and request for continued examination.

Regarding New Claims:

10 Amended claims 13 and 20 now meet the requirements as set forth in the Office Action and are now allowable. Please enter new dependent claim 21 which depends from allowed independent claim 20 and it is also allowable because it adds further description or details. Also, please add new independent claim 22 and associated dependent claims 23-33 which add further description and/or limitations. No new matter
15 has been added.

Conclusions

Applicant has amended independent claims 13 and 20 so that they now meet the requirements as set forth in the Office Action and are now allowable. New dependent claim 21 is allowable because it depends from allowable independent claim 20 and adds further description and/or limitations. New independent claim 22 and associated dependent claims 23-33 are allowable because they distinguish over the cited references.

If the Examiner finds the foregoing amendments and arguments not to be sufficient, then Applicant requests a phone call to the undersigned prior to mailing the next Office Action to discuss the matter so as to get the claims in condition for allowance.

Please telephone the undersigned at (408) 396-1112 if there are any questions regarding this matter.

Respectfully submitted,



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